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CLAIMS:

1.   Method of adding a fragile watermark (WM) to a media signal (S) comprising
at least one set of audio samples of digital audio information, comprising the steps of:
        providing a buried data channel (40, 42, 44, 46) in the audio samples of the
media signal, (step 60), and

5   providing a fragile watermark in at least some of the audio samples, (step 66),
wherein the fragile watermark is provided in or in coding related to the buried data channel.

2.   Method according to claim 1, wherein the step of providing a fragile
watermark comprises inserting the fragile watermark in the buried data channel (44).

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3.   Method according to claim 2, further including the steps of generating check
information (46) related to the fragile watermark, (step 62), and inserting the check
information related to the fragile watermark into the buried data channel, (step 66).

15   4.   Method according to claim 3, further including the step of generating the
check as a one way function or with a relation to a robust watermark associated with the
fragile watermark.

5.   Method according to claim 1, further including the step of inserting
20   synchronisation and allocation information (40) in the buried data channel, (step 66), which
information enables extraction of data in the buried data channel.

6.   Method according to claim 1, wherein the step of providing a fragile
watermark comprises providing a frequency variation of the spectral shape of the output
25   audio samples having the buried data channel.

7.   Method according to claim 6, wherein the frequency variation is provided
through varying the spectral shape of dither to be inserted in the buried data channel.

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8.   Method according to claim 7, further including the steps of combining the spectrum of the dither with a desired masked error spectrum for providing information for determining a noise shaped signal, providing said noise shaped signal and combining the noise shaped signal with the audio samples.

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9.   Method according to claim 6, wherein the frequency variation is provided through varying the spectral shape of a noise shaped signal and combining the processed noise shaped signal with the audio samples.

10   10.   Method of detecting a fragile watermark (WM) in a media signal (S') comprising at least one set of audio samples of digital audio information, comprising the step of:

        detecting the presence or absence of a correct fragile watermark in at least some of the audio samples, (step 76),

15   wherein the fragile watermark if present is provided in or in coding related to an at least originally provided buried data channel (40, 42, 44, 46) in the audio samples.

11.   Method according to claim 10, wherein the audio samples include a buried data channel and further comprising the step of extracting data from the buried data channel, 20   (steps 70, 72).

12.   Method according to claim 11, wherein the step of detecting a watermark comprises extracting the fragile watermark from the buried data channel (44).

25   13.   Method according to claim 12, further including the step of extracting check information (46) relating to the fragile watermark and determining if the watermark is a correct watermark based on the check information.

14.   Method according to claim 11, further comprising the step of extracting 30   synchronisation and allocation information (40) from the buried data channel and extracting data and detecting fragile watermark based on this synchronisation and allocation information.

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15.   Method according to claim 10, wherein the fragile watermark is provided as a certain spectral variation of the audio samples of the media signal in relation to the originally provided buried data channel and further comprising the step of detecting the spectral shape of the audio samples in order to detect the presence or absence of a fragile watermark.

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16.   Device (10) for adding a fragile watermark (WM) to a media signal (S) comprising at least one set of digital audio samples, comprising:

a digital media source input for receiving at least one set of digital audio samples,

10   a watermark forming unit (30) for providing a fragile watermark for use in at least some of the audio samples, and

a buried data inserting unit (14) arranged to provide a buried data channel (40, 42, 44, 46) in the audio samples of the media signal and to provide the fragile watermark in or in coding at least related to the buried data channel.

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17.   Device according to claim 16, wherein the buried data inserting unit is arranged to insert the fragile watermark in the buried data channel (44).

18.   Device according to claim 17, wherein the watermark forming unit is arranged
20   to generate check information related to the fragile watermark and the buried data inserting unit is further arranged to insert said check information related to the fragile watermark into the buried channel (46).

19.   Device according to claim 18, wherein the watermark forming unit is further
25   arranged to generate the check as a one way function or with a relation to a robust watermark associated with the fragile watermark.

20.   Device according to claim 16, wherein the buried data inserting unit is arranged to insert synchronisation and allocation information enabling extraction of data in
30   the buried data channel (40).

21.   Device according to claim 16, wherein the buried data inserting unit is arranged to provide the fragile watermark as a frequency variation of the spectral shape of the output audio samples having the buried data channel.

22.   Device according to claim 21, wherein the buried data inserting unit comprises a randomising unit (81) for providing data in the buried data channel in the form of dither coded with a reversible coding function (R) and the buried data inserting unit is arranged to vary the spectral shape of the dither to be inserted in the buried data channel in order to provide a fragile watermark.

23.   Device according to claim 22, wherein the buried data inserting unit further comprises a noise shaping unit (89) and is further arranged to combine the spectrum of the dither variation with a desired masked error spectrum and then provide this information to the noise shaping unit for forming a noise shaped signal for combining with the audio samples.

24.   Device according to claim 21, wherein the buried data inserting unit further comprises a noise shaping unit (99) and is further arranged to vary the spectral shape of a noise shaped signal from the noise shaping unit and combine the processed noise shaped signal with the audio samples.

25.   Device (15) for detecting a fragile watermark (WM) in a media signal (S´) comprising at least one set of digital audio samples, comprising:
        a fragile watermark detector (56; 110, 112, 114) detecting the presence or absence of a correct fragile watermark in at least some of the audio samples,
        wherein the fragile watermark if present is provided in or in coding related to an at least originally provided buried data channel (40, 42, 44, 46).

26.   Device according to claim 25, further including a buried data extracting unit (16) extracting data in a buried data channel in the audio samples of the media signal.

27.   Media signal (S´) comprising at least one set of audio samples of digital audio information, comprising:
        a fragile watermark (WM) in at least one of the audio samples,
        wherein the fragile watermark is provided in or in coding related to an at least originally provided buried data channel (40, 42, 44, 46).

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28.   Recorded medium (120) comprising a media signal (S´) including at least one
set of audio samples of digital audio information, which signal comprises:

            a fragile watermark (WM) in at least one of the audio samples,

            wherein the fragile watermark is provided in or in coding related to an at least
5   originally provided buried data channel (40, 42, 44, 46).